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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,033	02/27/2004	Michael Bauer	1431.103.101/FIN 423 US	8344
7590 06/30/2006			EXAMINER	
Dicke, Billig & Czaja, PLLC Fifth Street Towers 100 South Fifth Street, Suite 2250 Minneapolis, MN 55402			SEFER, AHMED N	
			ART UNIT	PAPER NUMBER
			2826	

DATE MAILED: 06/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/789,033	Applicant(s) BAUER ET AL.	
	Examiner A. Sefer	Art Unit 2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2006.  
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 4-15 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 4-15 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some\* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/19/06</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/19/06 has been entered.

### *Priority*

2. Submission of the translation of the foreign language application (DE 10308855.5) is acknowledged. Thus, US PG-Pub 2004/0157410 (Yamaguchi) is not available as a prior art.

### *Specification*

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The recitation of claim 13 calling for "... **the contact paths**" lacks proper antecedent basis.

### *Drawings*

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, **the contact paths recited in claim 13** must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet,

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even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 4 is rejected under 35 U.S.C. 102(b) as being anticipated by Nelson ("Nelson") USPN 4,930,216 (of record).

Nelson discloses figs. 1 and 4-11 a semiconductor wafer (col. 3, lines 35-44) with a top side and a rear side, the semiconductor wafer comprising integrated circuits for semiconductor chips 12 arranged in rows and columns on its wafer top side; strip-type separating regions (col. 3, lines 52-58) arranged between the integrated circuits of the semiconductor chips; wherein the

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separating regions have passage contacts 30/36 in the direction of the rear side of the semiconductor wafer, the passage contacts having perforations (fig. 10) with walls having a metal layer 34 applied thereto and wherein the walls have also an insulation layer 32 applied thereto.

7. Claim 5 is rejected under 35 U.S.C. 102(b) as being anticipated by Nakajima ("Nakajima") JP 2002-299372.

Nakajima discloses figs. 1-6 a semiconductor wafer 2 with a top side and a rear side, the semiconductor wafer comprising integrated circuits for semiconductor chips 20 arranged in rows and columns on its wafer top side; strip-type separating regions DL arranged between the integrated circuits of the semiconductor chips; wherein the separating regions have passage contacts 6 in the direction of the rear side of the semiconductor wafer; wherein the passage contacts have fusible solder material 31 (e.g. nickel/gold, see fig. 6 and page 4, par. 2.1 of machine translated document).

8. Claims 6-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakajima.

Nakajima discloses figs. 1-6 a semiconductor chip 20 with a top side, a rear side, and with edge sides (fig. 4), the semiconductor chip comprising an integrated circuit 1 on the top side; at least one edge side having edge contacts 3/6 wherein, the edge contacts extend from the top side in the direction of the rear side of the semiconductor chip; wherein the edge contacts are connected to electrodes of the integrated circuit via conductor tracks (fig. 2) located on the top surface of the semiconductor chip.

Regarding claims 7 and 8, Nakajima discloses edge sides having a perforation-like structure, semicylinder-like cutouts extending as edge contacts from the top side in the direction

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of the rear side (figs. 2 and 4), and having a metal layer 6 (fig. 3) or an insulating layer 5 (as in claim 8).

Regarding claim 9, Nakajima discloses cutouts having a soldering material 31 (e.g. nickel/gold, see page 4, par. 2.1 of machine translated document).

Regarding claim 10, Nakajima discloses edge contacts being extended on the top side to form a contact area 3 and merge with a conductor track (fig. 2) on the top side.

Regarding claim 11, Nakajima discloses a semiconductor chip being arranged on a circuit substrate (figs. 5 and 12) within an electronic component (fig. 1).

Regarding claims 12 and 14, Nakajima discloses in fig. 12 a circuit substrate (region under layer 12) having a conductor track structure 71, the semiconductor chip 20 being arranged with its rear side on the top side of the circuit substrate or with an edge side on the circuit substrate, the top side of the chip being arranged in angular (figs. 9-12) fashion wrt the top side of the substrate (as in claim 14) and the edge contacts (fig. 2 and 4) being electrically connected to the conductor structure via contact pads 72 on the top side of the circuit substrate.

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 13 and 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima in view of Fukatsu et al. ("Fukatsu") USPN 6,528,870.

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Nakajima discloses the device structure as recited in the claim, but does not specifically disclose a plurality of chips being stacked one on the other.

Fukatsu discloses in figs. 2-4 and 20-26 a plurality of chips 31/36 being stacked one on the other and being electrically connected via edge contacts 33 among one another and also with respect to external contacts 34.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Nakajima's device by incorporating a stacked plurality of chips so as to increase capacity as taught by Fukatsu.

Regarding claim 13, Nakajima suggests (see par. 23 of machine translated document) the employment of an insulating plastics composition but does not specifically disclose the recited arrangement.

Fukatsu discloses in fig. 15 an insulating plastics composition 64 (col. 10, lines 30-35) being arranged on a circuit substrate 41 in a manner embedding edge sides of the semiconductor chip and contact paths 334/61.

It would have been obvious to employ an insulating plastics composition in the recited arrangement since that would provide the device with a sealing element as taught by Fukatsu.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (571) 272-1921.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ANS

June 12, 2006

A handwritten signature in black ink, appearing to be 'A. Sefer', enclosed within a circular or oval shape.

*A. Sefer*  
*Patent Examiner*  
*Art Unit 2826*